

**Notice of Allowability**

Application No.

10/650,338

Examiner

Sathyanarayan Pannala

Applicant(s)

HIRAKAWA ET AL.

Art Unit

2164

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/8/2006.
2. ☒ The allowed claim(s) is/are 55-88 renumbered as 1-34.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☒ to Paper No./Mail Date 3/8/2006.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 12/13/05 ...
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 3/11/06.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

*S. Pannala*  
Sathyanarayan Pannala  
Patent Examiner

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/1/2006 has been entered.

2. Applicant's Amendment filed on 3/1/2006 has been entered with claims 1-46 as cancelled and claims 55-88 as added new. In this Office Action, claims 47-88 are pending.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 12/13/2005, 12/29/2005 and 3/8/2006 are in compliance with the provisions of 37 CFR 1.97 and have been considered by the examiner.

***Drawings***

4. The drawings were filed on 3/8/2006. These drawings are Fig. 1, 3, 7, 11, 14, 16, 19 and 23-24 and Examiner approved them.

***Specification***

5. The new title of the invention filed on 11/3/2005 is "**DATA REPLICATION AMONG STORAGE SYSTEMS**" and Examiner approved it.

6. The substitute specification filed on 3/8/2006 has been entered and examiner approved it.

**EXAMINER'S AMENDMENT**

7. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Srinath Malur on 4/11/2006.

**Claims:**

47-54 Canceled.

***Reasons for allowance***

8. The following is an examiner's statement of reasons for allowance:

- Prior art of record does not appear to teach or suggest or render obvious the claimed limitations in combination with the specific added limitations as recited in independent claims 55 and 71 and subsequent dependent claims 56-70 and 72-88. The prior art of record fails to teach or suggest a system for a request for transmission of the data and the information relating to the write order of the data is received from the second storage system, the first controller is configured to transmit the data and the information relating to the write order of the data from the second storage area to the second storage system in response to the request from the second storage system as recited in independent claim 55 and 71.


9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

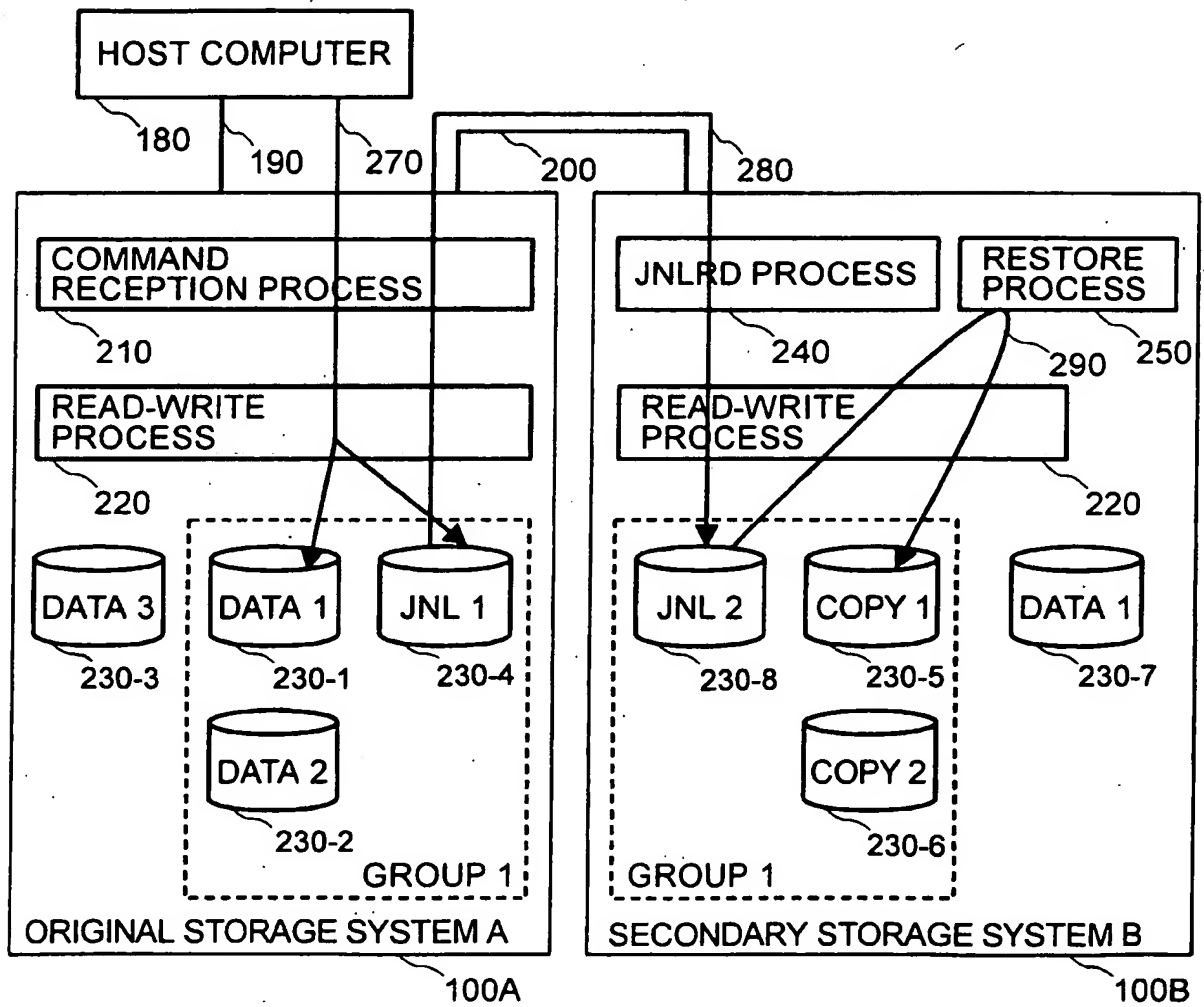
  
Sathyanarayan Pannala  
Examiner  
Art Unit 2164

srp  
April 12, 2006

*Approved  
SAP/4/11/06*



**FIG.1**





**FIG.3**

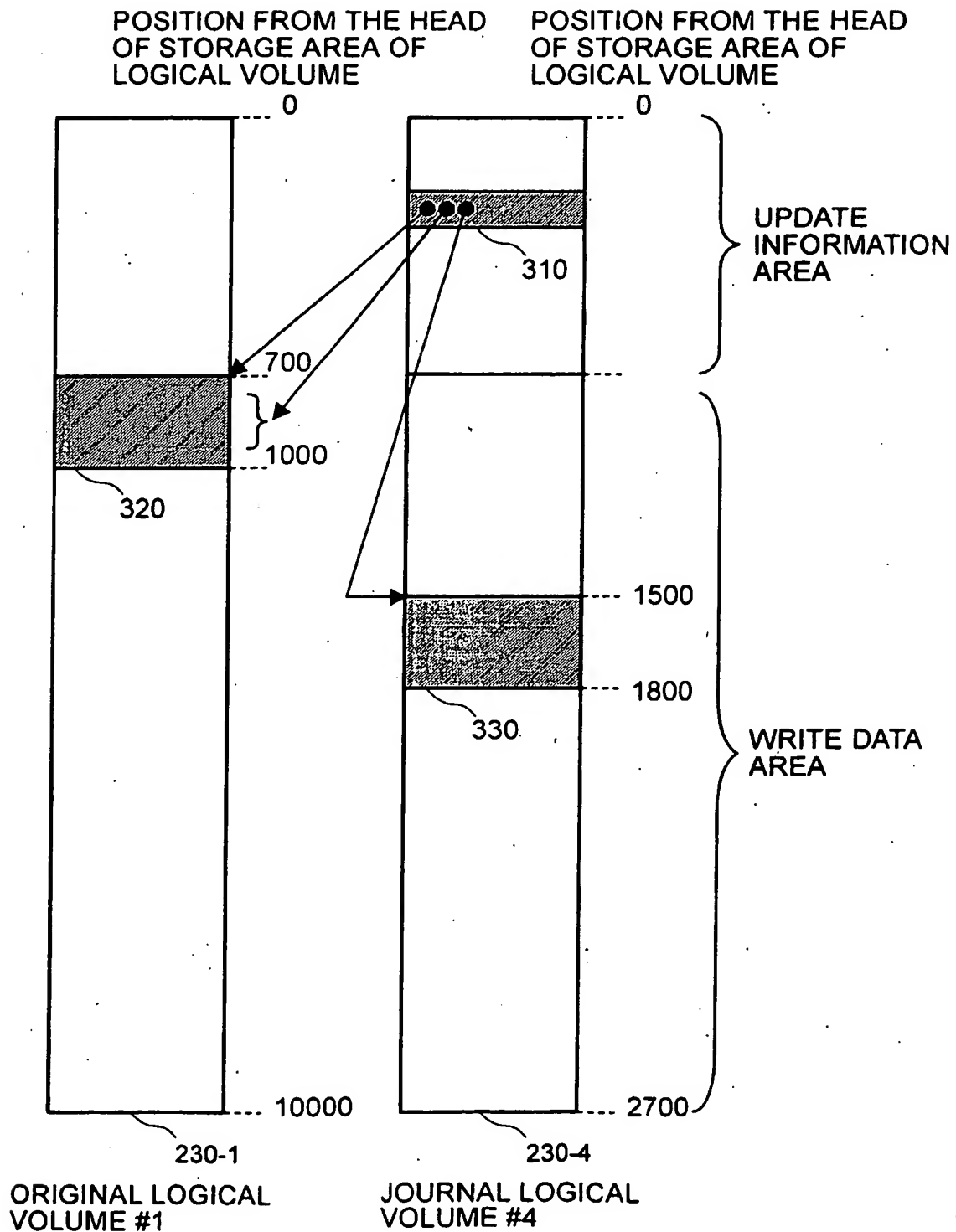




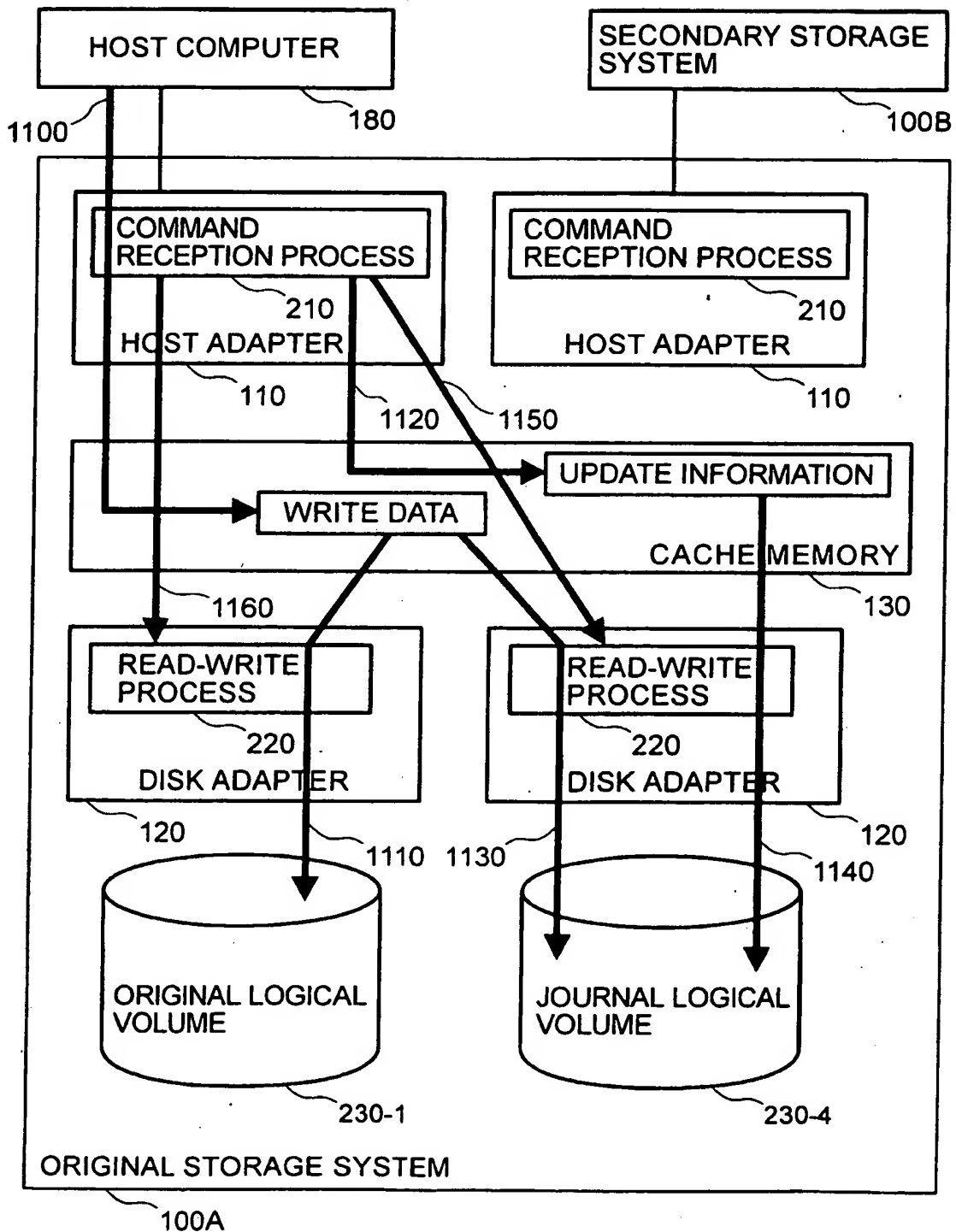
FIG.7

|                                      | LOGICAL ADDRESS       |  |
|--------------------------------------|-----------------------|--|
|                                      | LOGICAL VOLUME NUMBER | POSITION FROM THE HEAD OF STORAGE AREA OF LOGICAL VOLUME |
| UPDATE INFORMATION AREA HEAD ADDRESS | 4                     | 0  |
| WRITE DATA AREA HEAD ADDRESS         | 4                     | 700  |
| UPDATE INFORMATION NEWEST ADDRESS    | 4                     | 500  |
| UPDATE INFORMATION OLDEST ADDRESS    | 4                     | 200  |
| WRITE DATA NEWEST ADDRESS            | 4                     | 2200   |
| WRITE DATA OLDEST ADDRESS            | 4                     | 1300   |
| READ INITIATION ADDRESS              | 4                     | 400  |
| RETRY INITIATION ADDRESS             | 4                     | 300  |

701 POINTER INFORMATION



FIG.11





**FIG.14**

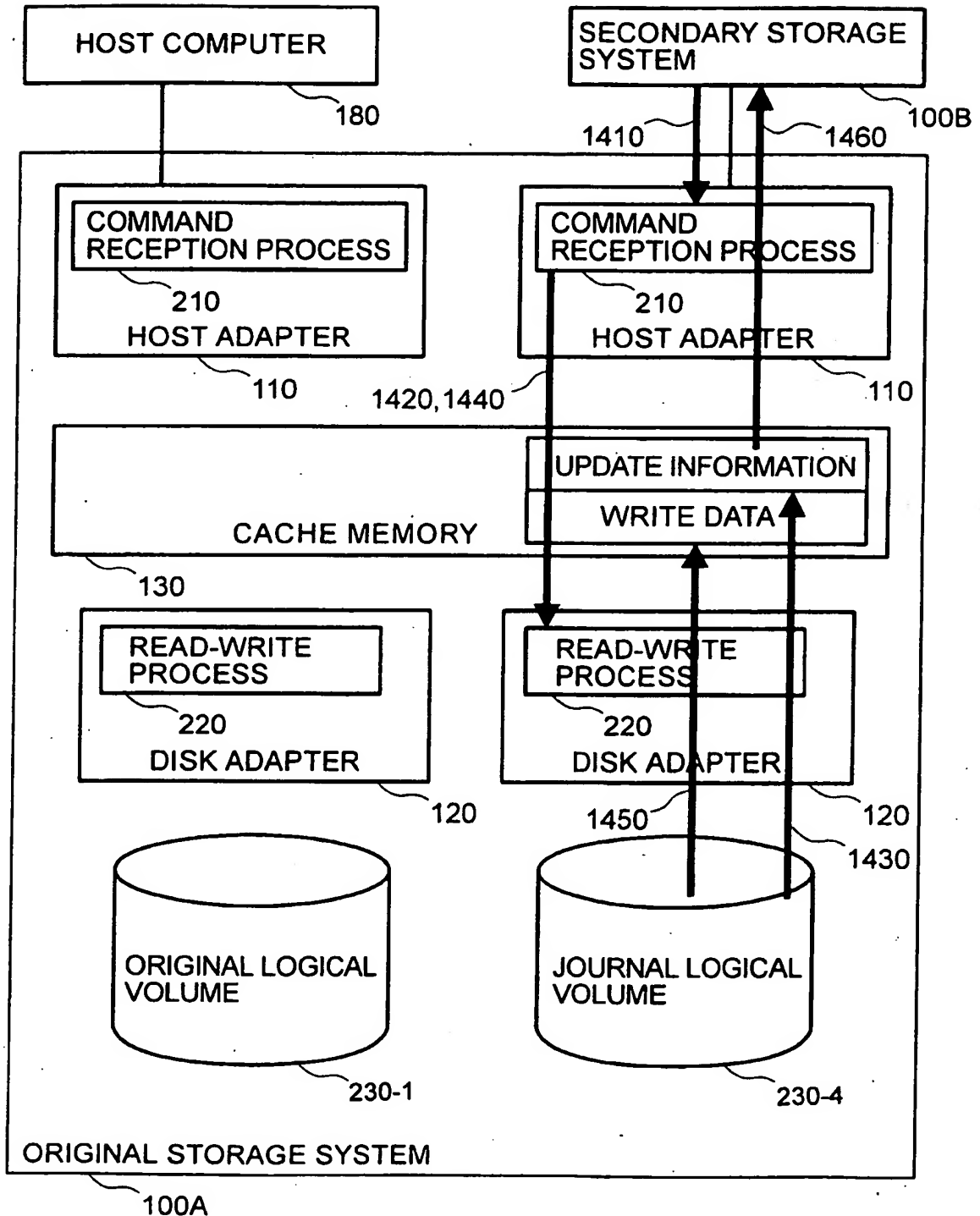




FIG.16

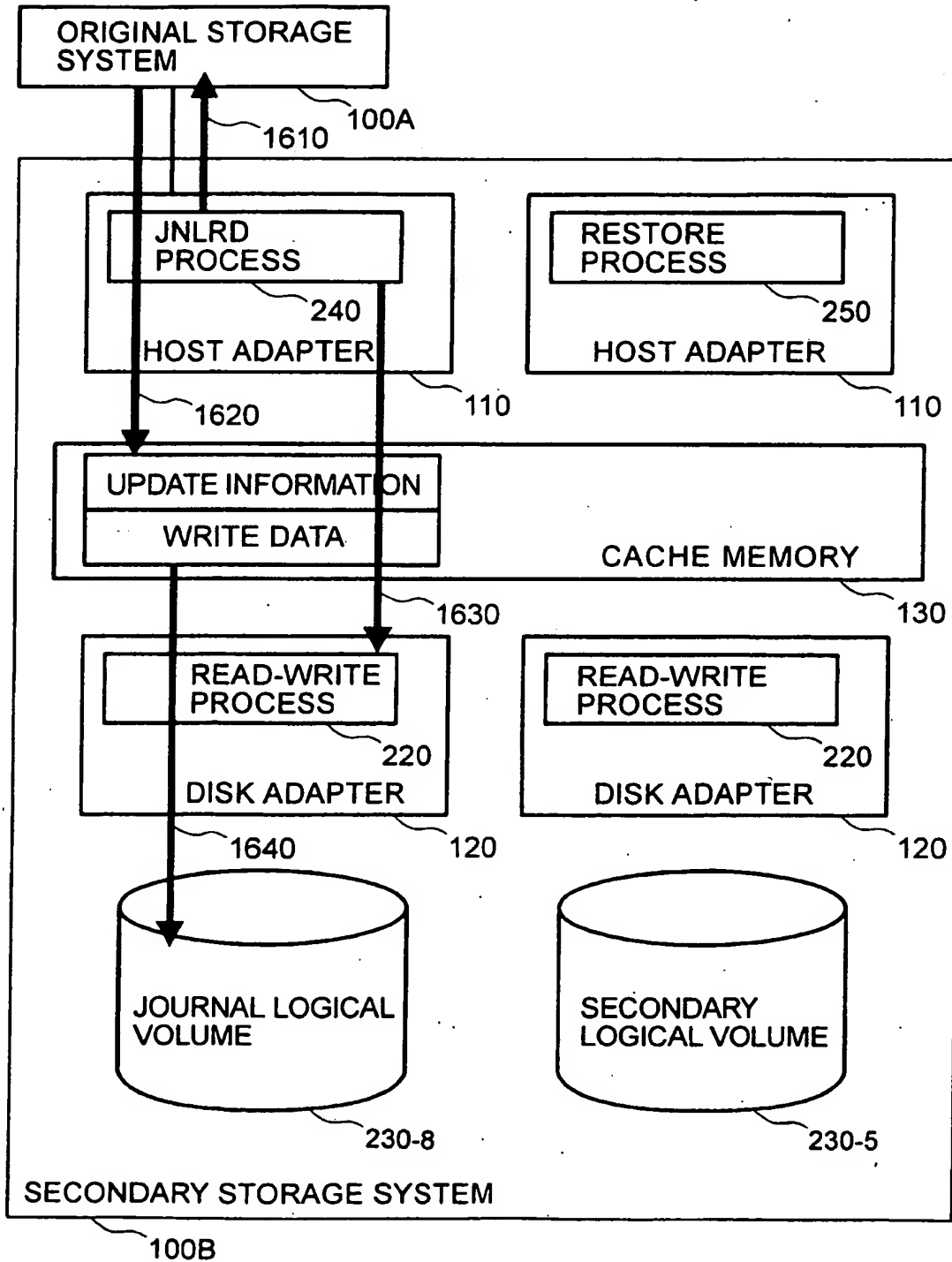




FIG.19

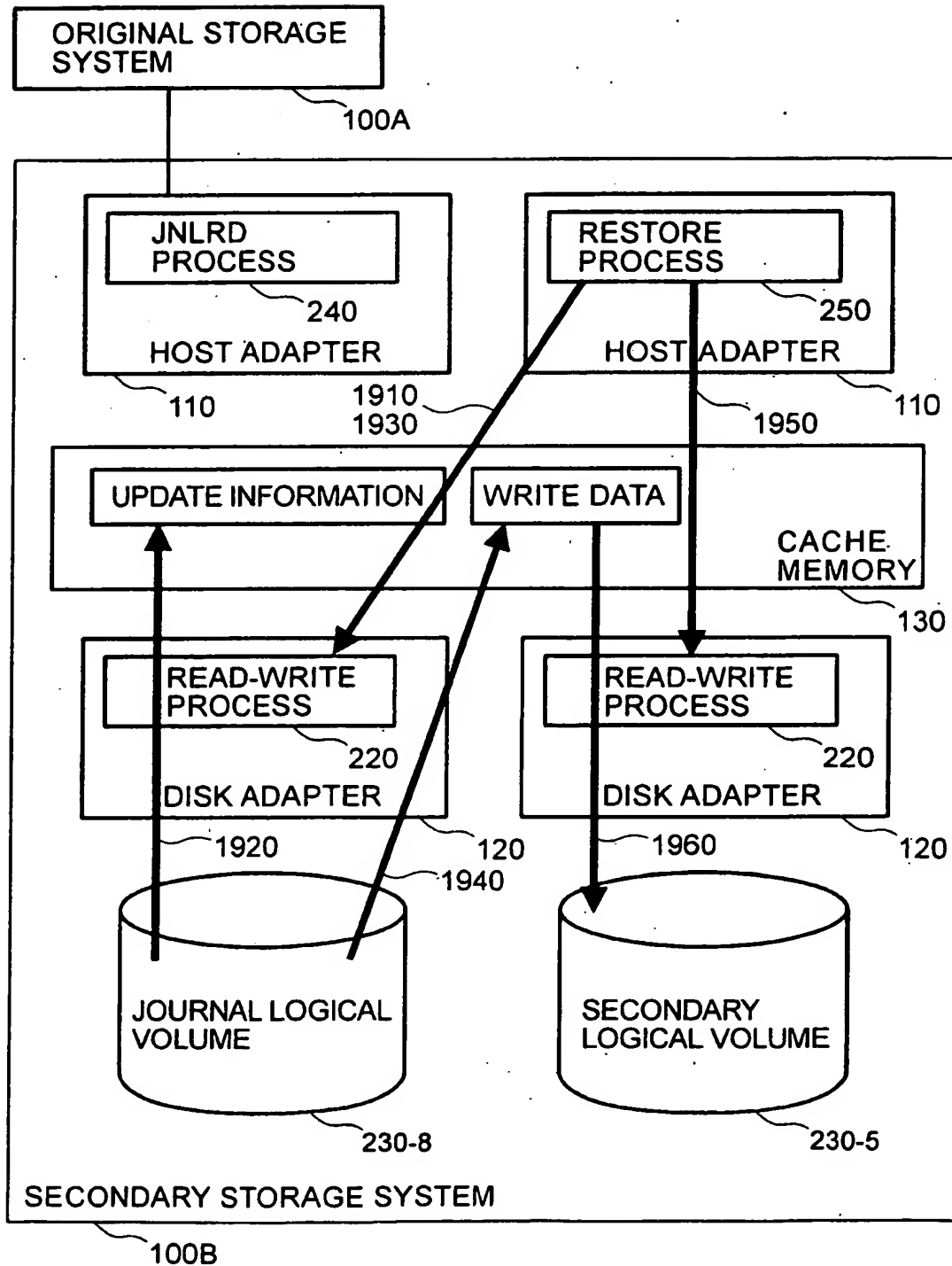


FIG.23

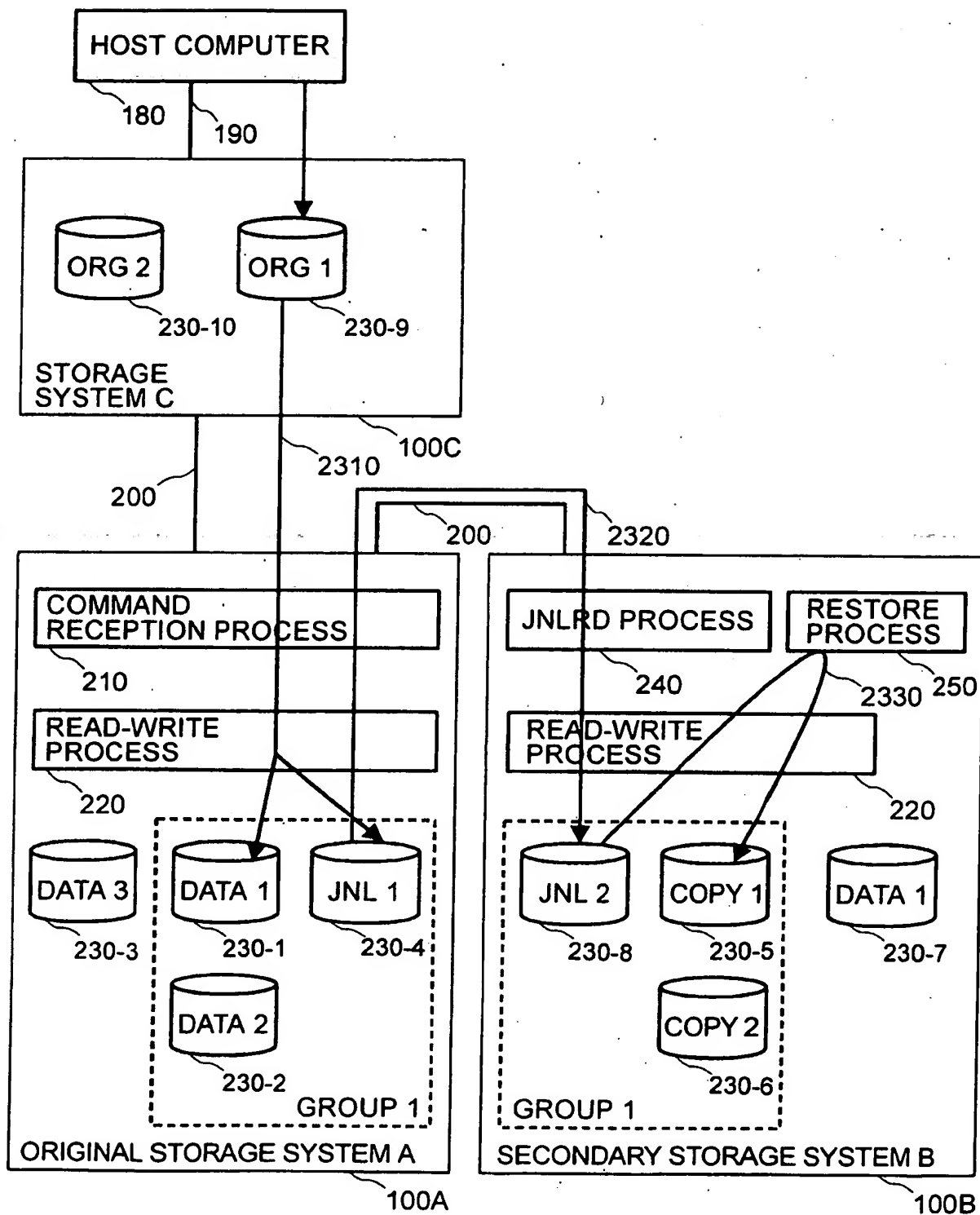




FIG.24

